NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

FIELD BORDER

(Feet)

CODE 386

DEFINITION

A strip of permanent vegetation established at the edge or around the perimeter of a field.

PURPOSE

- Reduce erosion from wind and water
- Soil and water quality protection
- Management of harmful insect populations
- Provide wildlife food and cover
- Increase carbon storage in biomass and soils.
- Improve air quality

CONDITIONS WHERE PRACTICE APPLIES

At the edges of cropland fields and to connect other buffer practices within the field. May also apply to recreation land or other land uses where agronomic crops are grown.

- To connect grassed waterways, filter strips, and other vegetated areas for ease of maintenance or harvest
- To establish setbacks for areas receiving manure, fertilizer, and other chemical applications
- To establish a setback for the protection of other conservation practices
- To protect field edges that are used for equipment turn and travel lanes
- To promote infiltration of surface water.
- To improve wildlife food and cover.
- To control competition from adjacent areas with woody vegetation
- This practice does not apply to plantings that are intended to function primarily as filter strips or as riparian buffers, for which other standards are available. (Refer to practice standard 393 – Filter Strip and standard 391 – Riparian Forest Buffer).

CRITERIA

General Criteria Applicable to All Purposes

Minimum field border widths on agricultural land shall be 20 feet. For all other land uses, except where wildlife habitat is the concern, the minimum width shall be 10 feet. Wider field borders will be designed based on local design criteria specific to the purpose or purposes for installing the practice.

The field borders shall be established to adapted species of permanent grass, legumes and/or shrubs. Use of locally native plant species with multiple values is encouraged.

Field borders shall be established around the field edges to the extent needed to meet the resource needs and producer objectives.

Plant materials, seedbed preparation, seeding rates, dates, depths, and planting methods will be consistent with the Vermont Standard 342 – Critical Area Planting, Vermont Standard 512 – Pasture and Hayland Planting or as approved by the State Conservationist. The specifications in standard 342 – Riparian Forest Buffer will be used in planting shrubs.

Ephemeral gullies and rills present in the planned border area will be smoothed as part of seedbed preparation.

Field borders may be established by leaving vegetated strips when converting or rotating hay or pasture fields into cropland. Field borders may also be established by clearing adjacent woodland. See Standard 460 – Land Clearing.

Additional Criteria to Reduce Erosion from Wind and Water

Wind Erosion Reduction. Locate borders around the entire perimeter of the field, or as a minimum, provide a stable area on the upwind edge of the field as determined by prevailing wind direction data.

Establish stiff-stemmed, upright grasses to trap saltating soil particles.

Minimum height of grass shall be one foot during the critical erosion period.

Water Erosion Reduction. Locate borders around entire perimeter of the field, or as a minimum, install borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.

Additional Criteria to Protect Soil and Water Quality

Reducing Runoff and Increasing Infiltration. Locate borders around entire perimeter of the field, or as a minimum, install borders to eliminate sloping end rows, headlands and other areas where concentrated water flows will enter or exit the field.

Maintaining Field Setback Distances for Manure and Chemical Applications. Border widths will be designed to conform to minimum field application setback widths established by state or local regulations and requirements for Comprehensive Nutrient Management Plans (CNMP's). Generally, setbacks should be a minimum of 50 feet unless specified otherwise by standard 590 – Nutrient Management.

Sediment Trapping. Locate borders around the entire perimeter of the field, or as a minimum, in areas where runoff enters or leaves the field.

Reducing Soil Compaction from Equipment Parking and Traffic. Border widths will be designed to accommodate equipment parking, field access, equipment turning, loading/unloading equipment, grain harvest operations, etc.

Additional Criteria for Management of Harmful Insect Populations.

Provide a Harbor for Beneficial Insects. Include herbaceous plants that attract beneficial insects. See planning considerations for including shrubs.

Mowing, harvesting and pesticide applications will be scheduled to accommodate life cycle requirements of the beneficial insects.

or

Provide a Habitat to Cause Pest Insects to Congregate. Select plants for the field border that attract pest insects.

Use mechanical, cultural and/or chemical techniques to reduce pest populations when and where they congregate in the field border.

Additional Criteria to Provide Wildlife Food and Cover

Establish plant species that provide wildlife food and cover for the target wildlife species.

Warm season grasses, such as big and little bluestem, switchgrass and indiangrass, provide valuable year round habitat although they typically take a few growing seasons to establish. See 'Vegetating with Native Grasses in Northeastern North America.'

Preferred cool season grasses for wildlife include timothy, orchard grass, redtop, Canada wildrye and Virginia wildrye. Legumes, such as ladino clover, common white clover, and red clover may be mixed in to improve the variety and food value of the stand.

Fruiting shrubs can be added randomly or in rows adjacent to the field border. Beneficial shrubs include elderberry, serviceberry or shadbush, native dogwoods, and viburnums.

Where wildlife food and cover is the intended purpose, minimum field border width will be 30 feet. Wider field borders will provide greater habitat value and travel corridors for wildlife.

Schedule mowing, harvest, and weed control activities within the field border to avoid April 15-August 1 to accommodate reproduction and other life cycle requirements of target wildlife species. Mowing and harvest work should be completed in August to allow re-growth for fall, winter and spring cover.

Additional Criteria to Improve Air Quality

Establish plant species with foliar and structural characteristics that optimize interception, adsorption and absorption of airborne particulates.

Orient shrub rows will be oriented as closely as possible to perpendicular to the prevailing wind direction during the period of concern.

Additional Criteria to Increase Carbon Storage in Biomass and Sequestration in the Soil

Establish plant species that will produce the greatest above and below ground biomass for the site.

CONSIDERATIONS

Field borders are more effective and provide more environmental benefits when planted around the entire field.

Field borders enhance the aesthetics and provide stability around the field edge. They also provide turn and travel areas for equipment and reduce airborne dust. When used for this purpose, establish grasses that are tolerant of heavy use.

To increase sediment trapping efficiency, consider establishing a narrow strip of stiff-stemmed upright grass at the crop/field border interface.

Field borders can be used to comply with required field setback distances applicable to manure and chemical applications.

Wildlife enhancement and other benefits of native plants should be discussed with the producer during planning.

Native species should be used when feasible and meet producer objectives.

Consider mixtures of native or introduced grasses with legumes rather than a single species. An herbaceous border can be overseeded with legumes to increase plant diversity and to provide additional wildlife benefits. Consider adding fruit bearing shrubs to enhance the wildlife habitat.

Schedule mowing, harvesting and weed control to accommodate wildlife nesting needs and other special requirements or purposes.

Waterbars or berms may be needed to breakup or redirect concentrated water flows within the borders.

If bank stabilization is a concern, select fibrous deep-rooted plants.

Consider plants tolerant to sediment deposition and chemicals planned for application.

Rows of shrubs (Windbreak/Shelterbelt, 380) adjacent to field borders will often enhance field borders ability to harbor beneficial insects, and may also provide additional wildlife benefits.

If installation or maintenance of the practice has potential of affecting cultural resources (archaeological, historic, historic landscape, or traditional cultural properties), follow NRCS state policy for considering cultural resources.

Consider using plant species that enhance biomass collection and carbon sequestration opportunities.

Consider increasing the width of the field border will increase the potential for carbon sequestration.

PLANS AND SPECIFICATIONS

Plans and specifications are to be prepared for the practice site. NRCS Conservation Job Sheet – 386 – Field Border is available to document the required items. Maintenance requirements should also be documented in the Conservation Plan Narrative. The following items should be specified:

- Purpose of Field Border
- Border widths and lengths based on local design criteria.
- Location within the field or farm boundary Vegetation to be used, including recommended seed mixtures and woody plant species

- Site preparation, including seedbed preparation method, grading, filling, etc. for control of concentrated flow and other site preparations used for establishment of the field border
- Planting method, including seeding rate and woody species planting density
- Liming or fertilizer requirements.
- Operation and maintenance requirements, including recurring items such as mowing

OPERATION AND MAINTENANCE

Field borders require careful management and maintenance for performance and longevity.

The following O&M activities will be planned and applied as needed:

- Storm damage repair.
- Sediment removal - when 6 inches of sediment have accumulated at the field border/cropland interface.
- Shut off sprayers and raise tillage equipment to avoid damage to field borders.
- Areas damaged by farm machinery, erosion, drought, livestock, chemicals, etc. will be repaired promptly and re-established according to the original plan.
- Fertilize, mow, and harvest to maintain plant vigor and desired plant community.
- Competitive weed growth and/or invasion of unwanted woody plants should be controlled by applicable methods such as mowing, burning, chemical application, or manual removal. Federally recognized noxious weeds and state recognized non-native invasive species shall also be controlled by applicable methods.
- Ephemeral gullies and rills that develop in the border will be filled, graded and reseeded promptly.

Maintain herbaceous vegetation so that it provides at least 80% ground cover throughout the year.

REFERENCES

Sargent, M.S and Carter, K.S., ed. 1999. Managing Michigan Wildlife: A Landowners Guide: Field Borders and Corridors. Michigan United Conservation Clubs, East Lansing, MI. 297pp. http://www.michigandnr.com/publications/pdfs/huntingwildlifehabitat/Landowners_Guide/Habitat_Mgmt/Cropland/index.htm

USDA NRCS and Ducks Unlimited. 1997. Vegetating with Native Grasses in Northeastern North America. 63pp.